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(56) Documents Cited
EP 0776140 A1 EP 0766166 A1 EP 0618715 A1
US 4839837 A US 4718740 A

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(54) A device comprising a computer and integrated telecommunication apparatus

(57) A portable device 1 comprises three modules mounted so that they can rotate about a common axle 12. A system unit (shown in fig.4 but 3 in fig. 2) and a keyboard unit 2 provide the outside housing units. The system unit contains mobile telephone components, such as a loudspeaker 5, microphone, switching device 4 and aerial 6, as well as a computer platform (15 in fig.5), peripheral components, sockets and battery compartment 7. The system unit and keyboard unit can be locked in a closed state and an open state, having been rotated by 180° with respect to each other, while the display unit arranged between them can be adjusted and locked at an angle of 0° to 90° with respect to the system unit. SIM cards and memory cards are used as replaceable peripheral components. An input pen 14 may be used to write on the display.

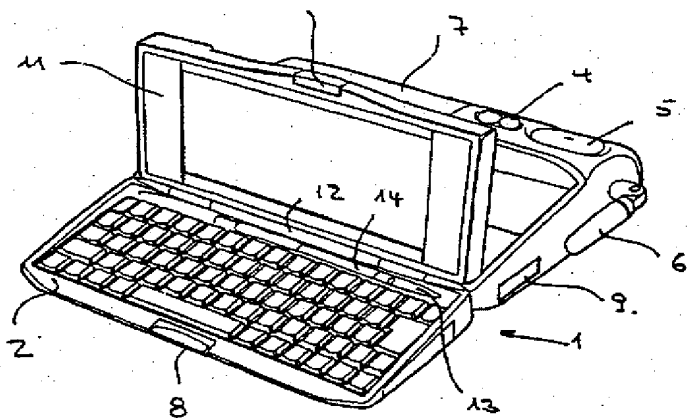


FIG 4

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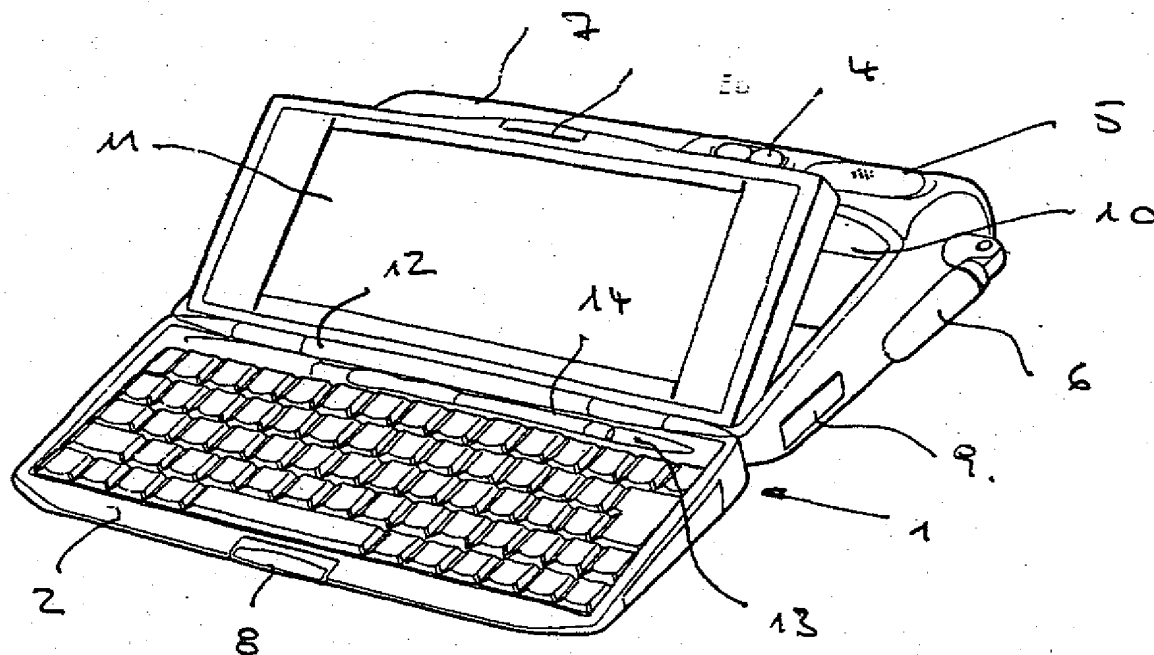


FIG. 3

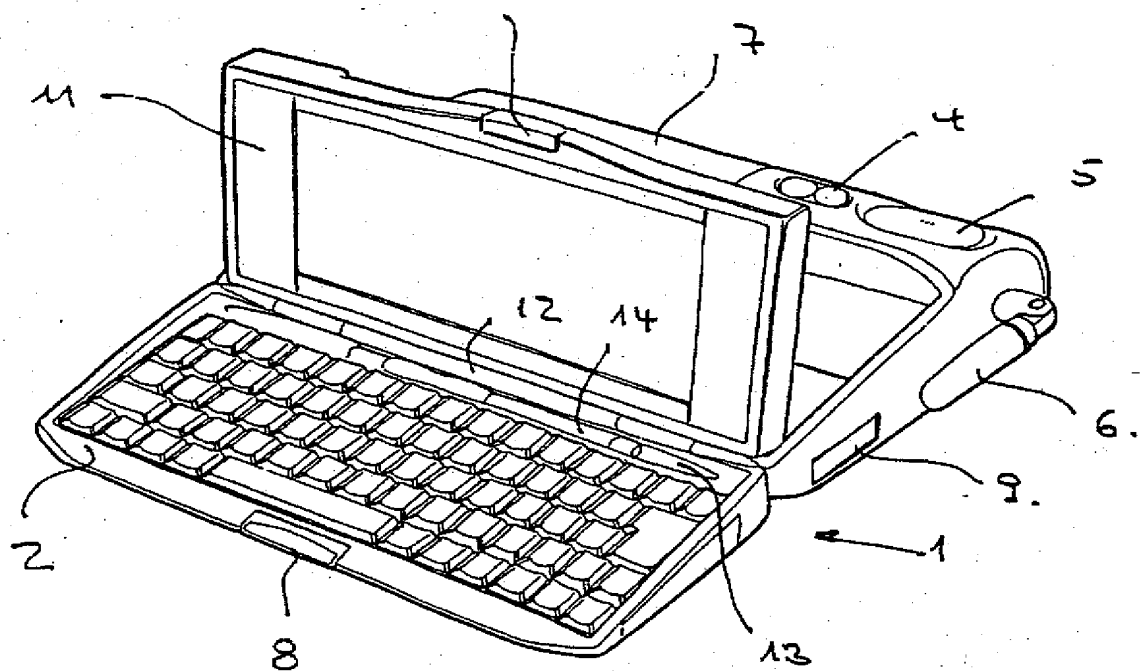


FIG. 4

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213
Sp

A DEVICE COMPRISING A COMPUTER AND INTEGRATED
TELECOMMUNICATION APPARATUS

5 This invention relates to a portable device comprising a computer and integrated telecommunication apparatus, where the computer, the computer keyboard, the display facility and the telecommunication apparatus are accommodated in modules which are mounted so that they can rotate about a common axis.

10 A device of this kind is disclosed in the text of DE 296 10 265 U1. In a closed or folded state, the computer keyboard and the display surface abut each other at the inner surfaces of the two modules, while the keyboard of the telecommunication apparatus and the microphone, the loudspeaker and a display to display
15 entered digits or characters are arranged on the surface of the module which is directed away from the display surface.

20 With this device it must be considered a disadvantage that when the display surface is marked by means of an input pen only one possible stable position of the two modules with respect to each other, namely the unfolded or open state, can be occupied. In this respect, the device must rest on a level hard base because the modules cannot be fixed in this position.

25 Since the telephone keyboard likewise rests on the base in the unfolded state, when the device is switched on an unintentional actuation of telephone keys can result.

30 The present invention seeks to provide a device of the type named in the introduction in which operability is substantially facilitated.

35 According to the invention, there is provided a portable device comprising a computer and integrated telecommunication apparatus, where the computer, a computer keyboard, a display facility and the telecommunication apparatus are accommodated in modules

more than 90° to be able to carry out replacement and maintenance jobs on the system unit.

5 In order to avoid an unintentional actuation of keys or other control elements as with the known device previously described, according to another development of the invention the surfaces of the system unit and keyboard unit which are on the outside when the device is in the folded state are free of these input elements. In this way, even when the device is
10 switched on during transportation or in the unfolded state, no input elements can be pressed, this again increasing the safety of the device.

In this respect, the telecommunication apparatus can be integrated advantageously into the system unit
15 with the modules and components necessary for its operation, such as loudspeaker, microphone, connection and disconnection device and aerial. In this respect, the connection and disconnection device and the loudspeaker, the microphone and the aerial can be
20 arranged on the end faces or on an inner surface of the system unit which is not covered by the keyboard unit, with the result that telephoning is possible when the device is in the folded state. When the device is open, call numbers can be entered by way of the
25 keyboard unit or, with appropriate operator interfaces stored or entered on the display unit, by means of an input pen.

In addition to the telecommunication apparatus, the system unit can furthermore comprise a computer
30 platform, fixed and replaceable peripheral components, sockets and an attachable battery compartment. In this respect, the computer platform contains the computer and memory components, while non-volatile memories and reading devices are provided as fixed peripheral
35 components. SIM cards and memory cards can be used as peripheral components which can be replaced as required

closed state;

Figure 2 shows the device in the open or unfolded state;

Figure 3 shows a part of the device in a first
5 fixed position;

Figure 4 shows a part of the device in a second fixed position;

Figure 5 shows an exploded view of the device.

The device 1 shown, comprising a computer and an
10 integrated telecommunication apparatus is substantially composed of three individual components, namely a system unit, a display unit and a keyboard unit which are rotatably connected to each other by way of an axle which is common to them.

15 Figure 1 shows the device 1 in the closed, or shut, state. In this state the rear side of the keyboard unit 2 which is free of control elements and the inner side of the system unit 3 can be recognized. A switching-on and switching-off device 4 and a
20 loudspeaker covering 5 and an aerial 6 for the telecommunication apparatus are arranged on the system unit 3. Moreover, a battery compartment 7 serving the power supply and containing batteries is fitted by means of a stop connection to the system unit.
25 Furthermore, in the upper area of the picture a recessed grip 8 on the keyboard unit 2 can be recognized, while the switch to put the device 1 into and out of operation is denoted as 9.

By engaging behind the recessed grip 8 the
30 keyboard unit is unfolded into the position shown in Figure 2. In the process, the keyboard unit 2 is rotated by 180° with respect to the system unit 3 and is locked in this position. The third component, the display unit 11, is likewise rotatably mounted about
35 the axle 12 in a receptacle 10 within the system unit. Next to the axle 12 there is a depression-shaped

computer platform 15 is closed by the covering 19 which has a rotary axle receptacle 20 on a longitudinal side. This covering 19 has on its side directed away from the computer platform 15 additional entrances, reachable from the outside, for the introduction of SIM cards for telephone operation or memory cards. When the device is switched on, a telephone connection can be established by inputting digits by way of the keyboard 27, by touching symbols appearing on the LCD display 22 or by writing digits or characters with the input pen 14 on the LCD display 22. The outer surface of the system unit 3 present when the device is in the folded state is free of control elements, like the outer side of the keyboard unit 2, with the result that an unintentional initiation of any functions when the device is switched on by mistake is excluded.

The display unit shown in the middle of the picture is composed of the covering frame 21, the LCD display 22 with ribbon cable 26, the spacing plate 23, the display housing 24 and a holding part 33. Two rotary axle receptacles 25 are in turn arranged on the display housing 24 on one of its longitudinal edges.

As already mentioned, for the purpose of character input by means of an input pen 14, the display unit 11 can be supported either flat within the receptacle 10 of the system unit 3 or it can be set upright at a specified angle of up to 90° and fixed in this position. However, the display unit 11 can also be rotated by an angle of more than 90° in order to make better access possible to the peripheral units on the surface of the system unit 3.

The keyboard unit 2 shown in the lower half of the picture comprises the keyboard 27 with the ribbon cable 28 which is introduced into the keyboard housing 29 and is arrested there, for example by means of the holding device 30. A cover 31 is snapped onto the outer side

CLAIMS

1. Portable device comprising a computer and integrated telecommunication apparatus, where the computer, a computer keyboard, a display facility and the telecommunication apparatus are accommodated in modules which are mounted so that they can rotate about an axle which is common to them, wherein the device is assembled from a system unit, a display unit and a keyboard unit, whereby the system unit and the keyboard unit can be locked with respect to each other in a closed position and in an open position in which the system unit and the keyboard unit are rotated by 180° with respect to each other, while the display unit arranged between them can be adjusted and locked at an angle of 0 to 90° with respect to the system unit.

2. Device according to claim 1, wherein when the device is in the closed position the external surfaces of the system unit and the keyboard unit are free of input elements.

3. Device according to claim 1 or 2, wherein the telecommunication apparatus with the modules and components necessary for its operation, such as loudspeaker, microphone, switching-on and switching-off device and aerial, is integrated into the system unit.

4. Device according to any preceding claim, wherein the system unit is formed by a computer platform, fixed and replaceable peripheral components, sockets and an attachable battery compartment.

5. Device according to claim 4, wherein the computer platform contains the computer and memory components.

6. Device according to claim 4 or 5, wherein non-volatile memories and reading devices are provided as fixed peripheral components.

7. Device according to one of claims 4-6, wherein SIM cards and memory cards are used as



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Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): H4J (JK), G4A (ADT)

Int Cl (Ed.6): G06F 1/16; H04M 1/02; H04B 1/38

Other: Online:- WPI, JAPIO, IFIPAT

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	EP 0776140 A1 (NOKIA)	
A	EP 0766166 A1 (PSION)	
A	EP 0618715 A1 (ACE DENKEN) - see eg. fig. 2.	
A	US 4839837 (CHANG)	
A	US 4718740 (COX)	

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
& Member of the same patent family

A Document indicating technological background and/or state of the art.
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E Patent document published on or after, but with priority date earlier than, the filing date of this application.